

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

1st Named Inventor: Vahan Avetisian	Group Art Unit: 3641
Serial No.: 09/733,813	
Filed: 12/8/2000	Examiner: Harold J. Tudor
Title: Overmolded Body for Pyrotechnic Initiator and Method of Molding Same	

DECLARATION UNDER 37 C.F.R. § 1.132

I, Vahan Avetisian, do declare and state as follows:

1. All statements herein are made based on my own personal knowledge except where it is indicated that a statement is based on information and belief. All statements made of my own knowledge are true, and all statements made on information and belief are believed to be true.

2. I am an inventor listed on the above-identified patent application ("this patent application"). I am skilled in the art of pyrotechnic initiators, and in particular, automotive airbag initiators and the bodies used in such initiators. I obtained a bachelors of science degree in Mechanical Engineering from University of California, Los Angeles in 1991. I have worked in the field of automotive initiators for approximately eight years.

3. I am familiar with U.S. Pat. No. 5,576,509 to Refouvelet et al. ("Refouvelet"), U.S. Pat. No. 2,741,179 to Taylor et al. ("Taylor"), and U.S. Pat. No. 3,906,838 to Craig et al. ("Craig").

4. In Fig. 1 of Refouvelet, the molding stops conventionally near the middle of the initiator; in Fig. 2, a separate pre-formed plug (16) is attached - not molded - onto the top end above the molded body. The statement in the Abstract of Refouvelet that "at least" the *endplate* could be covered by the plastic molding (10) does not reasonably imply that, alternatively, an extended unitary molding could be further extended so as to surround the upper portion of the initiator (instead of plug 16). Such an implication clearly would not have been drawn because the open-ended/non-hermetic upper end of the Refouvelet initiator teaches away from the possibility of molding a body in that region (i.e., providing an "overmolded" body) - the adjacent charge would present an undue hazard of auto-ignition under the heat and pressure of the process. The fact that Refouvelet's Fig. 2 embodiment shows a two-piece non-unitary, non-integral body further precludes such an implication. The numerous prior art in the field also independently teach away from such an implication, because every known prior art design with a casing surrounding the entire initiator has utilized a multi-part casing in which a distinct, separate piece (e.g., a cap or a cup) covers the top of the initiator.

5. Like Refouvelet, Craig shows an electrically non-conductive casing that surrounds substantially all of the initiator subassembly, but which is in two distinct parts rather than being integral and unitary. In Refouvelet, the casing (3) comprises a plastic plug (16) covering the top of the initiator and bonded to a plastic molding (10) by welding, adhesives, or clips. (See Fig. 2; col. 4, lines 49-60). Likewise, in Craig, "disc, pad or cover 46 is disposed over igniter 10 sealing cavity 26 ... extending over the ends or nonrecessed portions 48a, 48b of electrically conductive members 16a, 16b ... [and] is made of a suitable dielectric material, such as synthetic rubber,

which may be joined to the igniter members by a suitable adhesive." (Col. 4, lines 37-47). Neither reference remotely suggests an integral, unitary body, nor would any combination of these references do so.

6. There would have been no motivation for one of ordinary skill in the art at the time of the invention to attempt to apply the rubberlike "sheath" or "coating" of the Taylor detonator to an automotive initiator made according to Refouvelet. The construction and manufacturing techniques relevant to the Taylor detonator are so dissimilar to those of automotive initiators (e.g., the detonator has a matchhead rather than an initiator charge that is directly hermetically enclosed by a can, the detonator simply has wire leads at its end rather than a highly defined connector end, the detonator's rubberlike coating does not provide any support or engagement feature, etc.) that one of ordinary skill in the art would have been directly discouraged from any such attempt as it would have been useless.

7. The rubberlike sheath or coating of Taylor also cannot properly be combined with an automotive initiator according to the teachings of Refouvelet as it would not result in a useful device due to the dissimilarity of the construction and manufacturing techniques as noted in the previous paragraph. Taylor does not contribute in any way to solving the problem overcome by Applicant (see e.g., page 2, line 24 to page 4, line 10) of how to provide an automotive initiator with a unitary, integral molded body that surrounds substantially all of the initiator subassembly and provides structural support and installation orientation features.

8. In summary, none of the cited references, alone or in any reasonable combination, taught or suggested to one of ordinary skill in the art an integral and unitary overmolded body surrounding substantially all of an initiator subassembly (including its upper section).

9. I understand that willful false statements and the like are punishable by fine or imprisonment, or both (18 U.S.C. § 1001), and may jeopardize the validity of this patent application or any patent issuing thereon.


Vahan Avetisian

Date: April 9, 2004